

Calculus Warm Up #1-5

1) Evaluate: $\int (3x^2 e^x - 6x^3) dx$

2) Use your calculator to find: $f'(\sqrt{7})$

$$f(x) = -3x^5 - 7x^2 + 1.2x - \ln x + \cos x - 5$$

Week 1 Classwork: Turned in tomorrow

Warm Up on top

MC practice Part A, corrected
with your chosen practice book
problems attached.

FR practice #1 - 3

Week 1 HW Quiz: Tuesday, 4/3

p. 570, MC practice Part B, FR # 4 - 6

Classwork:

Free Response Practice, # 1 - 3

With Graphing Calculator

$$1a) \int_0^4 E(t) dt \approx 3,981 \text{ gallons}$$

b) possible extrema where $E(t) - 645 = 0$
or @ endpoints where $t = 0 \neq 4$

Max @ $t \approx 2.309$ hrs.

Max amount ≈ 1637 gallons.

$$c) C(t) = 0.15 - 0.02t \text{ dollars/gal}$$

$$\text{Total cost} = \int_0^4 [C(t)][E(t)] dt$$

$$\approx \$474$$

Classwork:

FR # 2 & 3

$$2a) A_s \approx 2.240$$

$$b) V \approx 63.107$$

$$c) V = \frac{1}{2} \int_0^1 (3 - x^2 - 2^x)^2 dx$$

$$\approx -1.637$$

$$3a) H'(10) \approx \frac{7}{4} ^\circ\text{C}/\text{min}$$

$$b) \approx 71.5 ^\circ\text{C}$$

c) underestimation

d) increasing at an increasing rate

HW: FR # 4 - 6

(answers follow this slide)

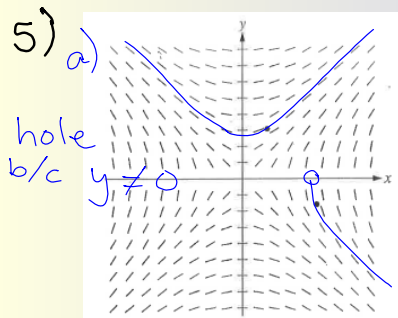
FR # 4-6

4) a) $g(1) = 0$ $g'(1) = 0$

b) $1 < x < \pi$; where $g'(x) = f(x)$ is positive

c) Absolute Min @ $x = 2\pi$

d) $g(1) = 0$ and g has min @ $x = 1$
 \therefore the graph of g is tangent to x -axis there.



b) slope
 $\frac{dy}{dx} = \frac{x}{y} = \frac{1}{2}$

tangent: $y - 2 = \frac{1}{2}(x - 1)$

c) $y = -\sqrt{x^2 - 8}$; $x > \sqrt{8}$

$$6a) \lim_{x \rightarrow \infty} g(x) = 0$$

$$b) \text{ where } g'(\frac{2}{3}) = 0 \text{ \& } g''(\frac{2}{3}) = -$$

$$g'(x) = \frac{1-x-b}{e^x}$$

$$g''(x) = \frac{-2+x+b}{e^x}$$

$$\boxed{b = \frac{1}{3}}$$

$$g''(\frac{2}{3}) = - \quad \checkmark$$

$$c) \text{ PI @ } x = 2-b$$

$$x > 0, \text{ so } 2-b > 0$$

$$\boxed{0 < b < 2}$$